

THE NOMENCLATURE OF *OGYRIS HALMATURIA* (TEPPER, 1890) (LEPIDOPTERA: LYCAENIDAE)

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Abstract

The purpose of this paper is to clarify and resolve the nomenclature of *Ogyris halmaturia* (Tepper, 1890), a nationally threatened butterfly which has had a long and complex nomenclatural history. This complexity has arisen because: (1) the species group name *halmaturia* was based on a mixed series comprising two different species; (2) historically at least six authors have attempted to resolve the nomenclature of *halmaturia*, but most failed to render a valid and unambiguous lectotype designation; (3) one of these authors (N.B. Tindale) made a particularly confusing lectotype designation in 1923; and (4) introduction of the name *Ogyris waterhouseri* (Bethune-Baker, 1905). The proposal to treat *O. waterhouseri* as a junior synonym of *O. halmaturia* is accepted. We argue that Tindale made the first valid and unambiguous lectotypification in 1923. Consequently, we propose, with the intention of bringing closure to this matter, that *O. halmaturia* is the senior synonym of *O. waterhouseri* and that Tepper's syntype 'female' is the lectotype male of *O. halmaturia*. Attention is drawn to ambiguity in Article 74.5 (lectotype designation made before 2000) in the most recent edition of the International Code of Zoological Nomenclature.

Introduction

The Australian endemic butterfly *Ogyris halmaturia* (Tepper, 1890) (Eastern Bronze Azure) is an endangered species of heathland and mallee-heathland habitats in coastal and semi-arid areas of South Australia and (formerly) western and south-western Victoria (Braby and Douglas 2008). Its taxonomic status is now agreed upon as a valid species, but a consensus on its nomenclature needs to be resolved urgently to effectively underpin conservation efforts.

The species has had a long and complex nomenclatural history (see Braby and Douglas 2008 for review). This complex nomenclature has arisen in at least four different ways. The first stems from the fact that Tepper (1890) had a mixed series comprising four syntypes representing two species (Table 1). The type specimens were all collected from near Kingscote (given as 'Queenscliffe'), Kangaroo Island, South Australia, on 20-21 November 1886, viz: three males of *O. otares* (C. & R. Felder, 1865) and a male of *O. halmaturia*, which Tepper incorrectly assumed represented the female of his new species. Because Tepper (1890) did not designate a type specimen or make reference to a type of any sort, a taxonomist must therefore determine which specimen of Tepper's type material (*i.e.* his syntypic series) represents the name-bearing 'type' in order to fix the name *O. halmaturia* to the species in question.

According to Article 74 of the ICZN (1999), the fixation of a name from syntypes is dependent on the designation of a lectotype; that specimen then becomes the unique bearer of the name of the nominal species group taxon and the standard for its application. And here lies the second issue, which is at the core of this complex problem.

In historical times, at least six authors (Lower 1893, Tepper 1893, Waterhouse 1903a, 1903b, Bethune-Baker 1905, 1916, Waterhouse and Lyell 1914, Tindale 1923) have attempted to resolve the taxonomy of *O. halmaturia* but few attempted to do so definitively by making a lectotype designation. Lower (1893) placed Tepper's male *O. halmaturia* under *O. otares* and Tepper's 'female' *O. halmaturia* in synonymy with *O. idmo* (Hewitson, 1862) but did not refer to 'types' of any form. Tepper (1893) himself maintained *O. halmaturia* as a species distinct from *O. otares* and *O. idmo*, and restricted its distribution to Kangaroo Island (and possibly on the mainland at Port Lincoln on the tip of Eyre Peninsula, SA), but he did not refer to type material and still failed to realise that he had a mixed series. Waterhouse (1903b p. 249) concurred with Lower (1893) and listed *O. halmaturia* as a synonym of *O. otares* and remarked that 'I almost certainly agree with Lower who says that Tepper's *O. halmaturia* comprises *O. otares* ♂ and *O. idmo* ♂'. He subsequently treated *O. halmaturia* as a synonym of both *O. otares* and *O. idmo* in his catalogue of Australian butterflies (Waterhouse 1903a), but again did not examine or make reference to a single 'type' specimen that would bear the name. Waterhouse and Lyell (1914) later subsumed *O. halmaturia* under *O. otares* in an attempt to resolve the taxonomy, but did not examine type material to clear up the nomenclature. Bethune-Baker (1905, 1916) and Tindale (1923) did, however, both refer to 'types', which we expand upon below. But here lies the third part of the problem: Tindale's (1923) type designation was confusing in that he partly synonymised Tepper's concept of *O. halmaturia* under *O. otares*. Lastly, 15 years after the species was formally described, another name, *O. waterhouseri* (Bethune-Baker, 1905), was introduced for it.

In attempting to resolve this complex nomenclatural problem, Braby and Douglas (2008) traced and critically examined the type series (= syntypes) of *O. halmaturia* (currently housed in the South Australian Museum (SAM) and The Natural History Museum, London (BMNH)), reviewed the historical literature and concluded that the name *O. halmaturia* is a junior synonym of *O. otares*, and consequently that Tepper's syntype of the second species is a paralectotype of *O. halmaturia*. In contrast, Field (1999), and more recently Grund (2010), proposed that *O. waterhouseri* is a junior synonym of *O. halmaturia*. Grund's argument was based on three lines of evidence: (1) that of Tepper's (1890) description of *O. halmaturia* and his original intention; (2) crediting Tindale (1923) as the first taxonomist to validly select a lectotype of *O. halmaturia*; and (3) espousing the premise of nomenclatural stability and the presumption that the name *waterhouseri* was interfering with

Table 1. Tepper's (1890) syntypic series of *Ogyris halmaturia* and their type status.

| Specimen, Complete label data, Repository, Type status and Current valid species name |
|---|
| <p>♀ <i>O. halmaturia</i> "Queenscliffe, 1 mile N.W. very shy, ♀, 20.11.86. Tepper" [in Tepper's original handwriting], "Ogyris halmaturia Tepper, Type female = ♂, Kangaroo Island n348, vide, TRSSA. 1923", "SAMA Database No. 31-001699" SAM. Lectotype. <i>O. halmaturia</i> ♂</p> |
| <p>♂ <i>O. halmaturia</i> "Queenscliffe, ♂, 1 m. N.W. very shy, 21.11.86. Tepper" [in Tepper's original handwriting], "Ogyris halmaturia Tepper, Type male, = not type, Kangaroo Island vide TRSSA 1923, p. 389", "Ogyris otnes ♂ not halmaturia", "SAM Database No. 31-001700" SAM. Paralectotype. <i>O. otnes</i> ♂</p> |
| <p>♂ <i>O. halmaturia</i> "Queenscliffe, 1 m. N.W. very shy, 20.11.86. Tepper" [in Tepper's original handwriting], "Ogyris halmaturia Tepper, Cotype male, Kangaroo Island vide TRSSA 1923, p. 389", "Ogyris otnes ♂ not halmaturia", "SAM Database No. 31-001701" SAM. Paralectotype. <i>O. otnes</i> ♂</p> |
| <p>♂ <i>O. halmaturia</i> "Queenscliffe, 1 mile N.W., in scrub. ♂, 20.11.86. Tepper" [in Tepper's original handwriting], "Ogyris halmaturia, Queenscliffe, Kang. Island, Nov. 1886., legit J.G.O. Tepper", "Bethune- Baker Coll. B.M. 1927-471." BMNH. Paralectotype. <i>O. otnes</i> ♂</p> |

common usage. We discuss each of these components of evidence in turn and show that, while the hypothesis to treat *O. halmaturia* as the senior synonym is supported, two of Grund's (2010) arguments are misguided on nomenclatural grounds.

Tepper's description of *O. halmaturia*

Grund (2010) argued that Tepper (1890) intentionally gave first priority in his description to the 'female' of *O. halmaturia* (= ♂ *O. halmaturia*) because Tepper made reference to its similarity with the underside of *O. oroetes* (Hewitson, 1862). 'This was the normal way of describing new species during this historical time period, viz. describing the important reference specimen first, be it male or female' (Grund 2010 p. 115). However, Tepper (1890) actually made no reference to the underside of *O. oroetes*, he just stated 'It comes nearest to *O. oroetes*, Hew., but differs from various details from Hewitson's figure'. More importantly though, Tepper (1890) did not describe the 'female' first, but in fact described the two supposed sexes together: after first giving approximate size measurements of the 'female' and male, he then described in some detail the upperside of *both sexes* (our emphasis) simultaneously'; he then proceeded to describe the underside of the 'female' and then the underside of the male. Whether Tepper (1890) intended to give priority to the 'female' of *O. halmaturia* or not is irrelevant in terms of nomenclature under the ICZN (1999) because Tepper (1890, 1893) did not refer to the specimens before him at the time of description (*i.e.*

his type material). As noted above, in such cases where there are two or more syntypes, especially where two or more species are involved, a lectotype must be selected from the type series in order to fix the name of the nominal species group taxon (Article 74.1) (ICZN 1999).

Designation of lectotype of *O. halmaturia*

Article 74.5 of the ICZN (1999) stipulates that 'In a lectotype designation made before 2000, either the term 'lectotype', or an exact translation or equivalent expression (e.g. 'the type'), must have been used or the author must have unambiguously selected a particular syntype to act as the unique type of the taxon.' That is, the Code appears to recognise three different situations or criteria under which a lectotype may be designated. In this case, three authors (Bethune-Baker 1905, 1916, Tindale 1923, Field 1999) potentially qualify as having undertaken acts of lectotypification under this ruling.

In his revision of the genus *Ogyris*, Bethune-Baker (1905 pp 276-277) remarked under the taxon *O. otanes* that 'Mr. Waterhouse has kindly sent me for examination two specimens from Kangaroo Island with a query as to whether they are Felder's insect, but after a very careful comparison I believe them to be distinct, and they are the form named by Tepper *halmaturia*. I have now before me the type of this species as well as Felder's type (I must here express my best wishes to Mr. Tepper for the loan of it); and I consider that they are distinct forms; more material may prove them to be sub-species, but they differ sufficiently to warrant them being named.' In other words, Bethune-Baker (1905) is saying that *O. otanes* (from the South Australian mainland) and *O. halmaturia* (from Kangaroo Island) are closely related species, but further research may prove them to be conspecific. Indeed, he later remarked '... in the closing sentence of p. 277 of my monograph I broadly hint at the possibility of *halmaturia* being a form of *otanes*, Felder, and I am quite willing to concede it as a race of that species' (Bethune-Baker 1916 p. 390). This later statement was made in response to comments by Waterhouse and Lyell (1914), who did not recognise *O. halmaturia*, subsuming it (i.e. the Kangaroo Island population) under the species *O. otanes*. Bethune-Baker (1905) was unaware of the fact that Tepper had a mixed series until much later (see Bethune-Baker 1916); he examined only one of Tepper's syntypes (= ♂ *O. otanes*) and referred to that specimen as a 'type', 'I regard Tepper's species as distinct from *otanes*, Feld., both of which types are now before me' (Bethune-Baker 1905 p. 275) and 'I only had the ♂ type of this insect before me' (Bethune-Baker 1916 p. 390).

Edwards *et al.* (2001) interpreted Bethune-Baker's (1905) reference to a type as an intentional and valid lectotype designation; however, Braby and Douglas (2008) and Grund (2010) did not consider this to be the case because Bethune-Baker (1905 p. 277) used the term 'type' rather vaguely to describe all the syntypes of *O. halmaturia*, 'The types from Kangaroo Island are in the

S. Australian Museum. Mr. Waterhouse also has specimens from the same locality.’ and as such he did not intentionally or explicitly make a formal type designation, at least not one that could be deemed ‘unambiguous’ in the sense of Article 74.5. Although there is some uncertainty in the current edition of the ICZN (1999) in relation to Article 74.5, particularly with interpretation of the second criterion ‘an exact translation or equivalent expression (e.g. ‘the type’), must have been used’ in a lectotype designation made before 2000, many taxonomists would interpret the use of the word ‘type’ by Bethune-Baker for one of Tepper’s syntypes to be construed as a valid lectotype designation by inference, provided the specimen could be identified and unambiguously located. The specimen is currently located in the BMNH and was identified and illustrated by Braby and Douglas (2008 Figs 7-9 p. 319), who considered it to be a paralectotype of *O. halmaturia*. On the other hand, an alternative interpretation of Article 74.5 is that a lectotype designation must satisfy all three criteria: that of being intentional, unambiguous and based on a single or unique type specimen (C. Thompson pers. comm. 2010). Although it is clear that Bethune-Baker (1905) had only one of Tepper’s syntypes available to him, and on two occasions in that publication he referred to that specimen as the ‘type’ (see also remarks by Tindale 1923), he was not *intentionally* selecting that specimen among the type series to be the *unique* type specimen and, moreover, he used the word ‘type’ in different senses, both in the singular and plural. Bethune-Baker (1916) again referred to that specimen as ‘the male type’, but this was prefixed by the phrase ‘I *only* had...’ (our emphasis), indicating that he was aware of other ‘types’ (*i.e.* Tepper’s syntypic series); hence, here again there is ambiguity as to whether or not he was intending the loaned syntype to be the primary type of *halmaturia*.

We now reconsider the work of Tindale (1923) because this was the second line of evidence used by Grund (2010) to synonymise the name *O. waterhouseri*. Tindale’s publication is interesting because of the confusing way it was written. Tindale (1923 p. 347) considered *O. halmaturia* and *O. otales* to be conspecific and synonymised *O. halmaturia* under *O. otales* in part. Tindale also illustrated one of Tepper’s male syntypes (in SAM) from Kangaroo Island in Plate 24, Figure 16, and in the figure caption (p. 354) referred to that specimen as ‘*Ogyris halmaturia*, Tepper, Type male, Kangaroo Island = *otales*, Felder.’ Braby and Douglas (2008) considered Tindale’s (1923) action on p. 347 to be an intentional designation of a lectotype on the basis that: (1) he referred to one of Tepper’s syntypes as the ‘type’ in the figure caption (p. 354); and (2) he illustrated that specimen (Plate 24), but these authors overlooked the fact that Tindale explicitly wrote ‘(part)’ at the end of the synonymy line. Tindale (1923) did the same for *O. halmaturia* on the next page (p. 348) on which he redescribed and illustrated Tepper’s ‘female’ syntype in Plate 24, Figure 20 and referred to it as the ‘type’ of *O. halmaturia* in the figure caption (p. 354). Tindale (1923 p. 348)

stated 'The type male is a typical specimen of *O. otanes*, Feld.; the 'female' is the male of a species very close to *O. waterhouseri*, Bethune-Baker and, as in the original description, the 'female' is mentioned and described first, the name *halmaturia* will stand.' Grund (2010) considered this action by Tindale to be evidence in support of an intentional lectotype designation; that is, Tindale deliberately selected the 'female' to be the primary type or name-bearer of *O. halmaturia*. In considering this particular aspect we concur with Grund (2010) of Tindale's intent; it is likely that Tindale (1923 p. 347) was merely referring to, and illustrating, the syntype male of *O. halmaturia* (= ♂ *O. otanes*) to show that it belonged to a different species, rather than attempting to synonymise the whole of Tepper's concept of *O. halmaturia* with *O. otanes*.

Tindale's (1923) action on p. 348 in which he explicitly refers to Tepper's 'female' type specimen therefore, in our opinion, fixes the name *O. halmaturia* to the taxon. Because the lectotype of *O. halmaturia* is the same species as the lectotype of *O. waterhouseri*, which was described 15 years later, the species group name *waterhouseri* is therefore a junior synonym of *O. halmaturia*. Accepting Tindale (1923 p. 348), rather than Tindale (1923 p. 347) or Bethune-Baker (1905, 1916), as the first taxonomist to validly and unambiguously designate a lectotype for the nominal species group name *halmaturia*, renders the subsequent action of Field (1999), who also designated Tepper's 'female' syntype as a lectotype of *O. halmaturia*, as an incorrect subsequent lectotype designation. That is, once a lectotype has been validly designated, all subsequent lectotypifications have no validity (Article 74.1.1) and, moreover, this designation permanently deprives all other specimens that were formerly syntypes of that status in that they automatically become paralectotypes (Article 74.1.3). Tepper's three syntype males (= ♂ *O. otanes*) thus all qualify as paralectotypes of *O. halmaturia* (Table 1).

Nomenclatural stability

Grund (2010) argued that because the name *O. halmaturia* has been in usage for the past 86 years (*i.e.* since Tindale 1923) at one level or another it qualifies for nomenclatural 'protection' in some way. It is true that the name has been in common usage for a long period, but it is also true that the name *O. waterhouseri* has had continuous usage for an almost equally long period, from 1905 to 1972 (67 years) (see synonymic list and review of literature in Braby and Douglas 2008). In terms of actual usage, *waterhouseri* has appeared unambiguously with full species status four times or as a subspecies of *O. idmo* eight times; *halmaturia* has appeared unambiguously with full species status only twice or as a subspecies of *O. idmo* 20 times; and once they have appeared ambiguously with both names combined, as *O. halmaturia waterhouseri* (Tindale 1923). Moreover, the name *waterhouseri* has appeared unambiguously as valid in a major checklist of type material in

the Australian Museum, Sydney (Peters 1971) and in several books (Common 1964, D'Abrera 1971, McCubbin 1971), as well as in the perceptive paper by Quick (1972).

The ICZN (1999) does allow for the automatic reversal of precedence of a long-unused senior synonym under its Reversal of Precedence provision (Article 23.9), but then only under two strict conditions. If either of these conditions cannot be met completely, then an author must refer the case to the Commission of the ICZN for a formal decision requesting existing usage of the junior synonym to be maintained instead of acting unilaterally. A recent entomological example under this provision is that by Jendek (2007), wherein the name *Buprestis angustulata* Illiger, 1803 was given precedence by the ICZN (2009) over *B. pavida* Fabricius, 1793. There is no way this provision by itself could be invoked to conserve *halmaturia* over *waterhouseri* because *halmaturia* is not the junior synonym.

In closing, our hope in resolving and clarifying the nomenclature of *Ogyris halmaturia* – that it is a senior synonym of *O. waterhouseri* based on interpretation of Tindale (1923 p. 348) as making the first valid lectotype designation – is that it will meet acceptance amongst the wider entomological community, and that it will be the name adopted by students of Lepidoptera, government agencies and non-government organizations in attempts to improve the conservation status of the species, which ranks as one of Australia's most threatened butterflies (Braby and Douglas 2008). We deem this more preferable than attempting to decipher confusion inherent in Article 75.4 and prepare an Application to the International Commission of Zoological Nomenclature to reject *O. halmaturia* in favour of *O. waterhouseri*.

Acknowledgements

We thank Pete Cranston and Penny Gullan (UC Davis, USA), Ted Edwards (ANIC, Canberra), Tim New (La Trobe University, Melbourne), Graham Brown (MAGNT, Darwin), Alan Beu (GNS Science, New Zealand) and past/present ICZN Commissioners Chris Thompson (Smithsonian Institution, USA), Bruce Halliday (ANIC, Canberra) and Gary Rosenberg (ANSP, USA) for their wise council on this note.

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